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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society Of America

VOL. IV DECEMBER, 1932 No. 6

From McCabe's Cactus Garden

Echinocereus delaetii

(See page 304)

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The Alwin Berger Succulent Herbarium

The Herbarium of Succulent Plants formed by the late Mr. Alwin Berger, accession of which was recorded in the last Annual Report of the Director in Chief*, has now been mounted, arranged, and distributed into the General Herbarium of the Garden. It proves to be one of the most noteworthy and valuable special collections ever obtained by us, and supplements the representation of many genera and species, also adding specimens of many species not hitherto obtained. The Cacti include specimens or drawings, or both of over 500 species; the beautifully accurate pencil-drawings of flowers and fruits are of especial importance. The Stonecrop Family (Crassulaceae) over 140. Of *Aloes* there are 160, of *Euphorbias* and related genera 65, of *Stapelias* 52, of *Mesembryanthemums* 66, and miscellaneous genera and species over 50. Thus, of succulent plants of all categories the collection contains over 1000 species. Manuscript notes and descriptions accompany many of the specimens.

Mr. Berger was for many years in charge of the extensive collections of plants in the grounds of La Mortola, on the Italian Riviera, the estate of the late Sir Thomas Hanbury. The climate there is well adapted to the cultivation of an enormous number of kinds of plants from warm-temperate and subtropical regions, and a specialty was made of succulents. Mr. Berger studied these intensively, added greatly to knowledge of them by numerous publications, and preserved herbarium specimens for record and reference, which have now become the property of The New York Botanical Garden, where they are available for students of Botany and Horticulture. We are indebted to Professor L. H. Bailey for informing us of the opportunity to obtain this collection from Mrs. Elise Berger.

N. L. BRITTON, *Director Emeritus.*

*Bull. N. Y. Bot. Gard. 14: 319. 1932.

Euphorbia fimbriata, Scopoli from Deliciae florae et faunae Insubricae, part III, page 8. (a) bracts, (b) flower x .75, (c) flower without appendixes, (d) calyx split open, (e) anther.

A List of Annotated Observations on the Remarks of Dr. K. von Poellnitz Concerning A. Berger's Classification of Succulent Euphorbiae

By LEON CROIZAT

It is my purpose to discuss for the readers of the Journal and for the students of succulent Euphorbiæ in general, the remarks made by Dr. Karl von Poellnitz in regard to the classification of Euphorbiæ proposed by Alwin Berger in "Sukkulente Euphorbien" (Edit. Ulmer Verlag, Stuttgart, Germany, 1907.)

The handbook of Berger is still the standard text of lovers and collectors of succulent Euphorbiæ and the remarks of Dr. von Poellnitz, published in Zeitschrift fuer Sukkulentenkunde, 1927, p. 177, are known mostly on account of their being quoted in correction of Berger's listings.

It is unfortunate, however, that Dr. von Poellnitz's remarks are given to the public in the form of uncritical dogmatic statements with implicit reference to the works of N. E. Brown, of Kew Gardens, Surrey,

Great Britain, which deal with Euphorbiæ ("Flora of Tropical Africa, IV, i, parts 3 and 4, edited by Sir Thiselton Dyer, London, 1911"; also 'Flora Capensis, V ii, part 2, edited by Sir Thiselton Dyer, London 1915"). Brown's work are technical contributions to the systematic of Tropical and Southern Africa and few, if any, are the collectors and lovers of Euphorbiæ who possess the background or have the time required to use them with sufficient discrimination. The uncritical acceptance of Dr. von Poellnitz's remarks, coupled with the ignorance of the sources used by N. E. Brown is the cause of much erroneous, sometimes downright ludicrous naming of succulent Euphorbiæ attempted by dealers, amateurs and general botanists.

It must be very clearly understood that the remarks of Dr. von Poellnitz cannot be used without at least a superficial acquaintance of the sources, without some measure of first hand knowledge of the works of Morison, Plukenet, Commelin, Burmann, Van den Rhede, Linnæus, Lamarck, Scopoli, Jacquin, Miller, Decandolle, Sweet, Willdenow, Aiton, Donn, Haworth, Steudel, Richard, Baillon, Lemaire, Boissier, Schweinfuerth, Pax, Berger, N. E. Brown, etc. Furthermore: not all the remarks of Dr. von Poellnitz are of equal value. Some are correct and must be accepted; some may be accepted with qualification; while others are grounded on erroneous or wrongly assumed premises and must be rejected.

I shall not be bound to the analysis of N. E. Brown's listings as such. I will examine related questions and check and compare documents, quoting N. E. Brown's sources in the light of the original texts. I trust it will be my privilege to acquaint the reader with originals that are now unknown and seldom found even in the best libraries. Furthermore: I will supply the reader a number of leads and indications of general value which shall assist him in some investigation of his own, for I will not pass unnoticed questions of method in research that may present themselves for consideration. I hope, in fact, that the result of my effort shall be a wider and more accurate knowledge of nomenclature of succulent Euphorbiæ amongst lovers and collectors.

I will quote the necessary texts either in the original or in my own translations, made from the sources themselves in Latin, German, French, Italian, and Flemish, omitting, however, for the sake of brevity, everything which is not of the essence of the argument. Tracings of old drawings and plates from the originals, made by myself, or photostats of original illustrations, will contribute additional light to the subject at hand. Photographs of specimens will be given whenever possible or necessary.

Although I expect to be able to pass in time on almost all, if not actually all the remarks of Dr. von Poellnitz, taking notice as I progress of the questions that they raise by implication, in the effort to liquidate much of the controversial element now present in the nomenclature of Euphorbiæ, I will not discuss these remarks in their numerical sequence. Some are important, because they concern species well known and much abused; others concern questions of academic interest or bear upon types which are unknown to the average collector. I shall choose to follow, therefore, the order of subject importance adapted to the needs of American amateurs, botanists, and collectors of succulent Euphorbiæ.

OBSERVATION No. 1: EUPHORBIAE OF THE TYPE MAMMILLARIS (including E. Pferdorfii or Pfersdorfii, hort.)

In order to avoid confusing and complicating my statements with cumbersome references to species which have been named differently by conflicting authors, I will designate generally as Euphorbia type *mammillaris*, more briefly *"mammillaris"* one succulent Euphorbia, usually known in collections as *"Euphorbia mammillaris"*, connotated by the following elements: stem erect, 7 to 12 angled; angles warty on account of lines cutting horizontally across the angles; spines stout, solitary, at time floriferous; leaves small, soon falling.

Insofar as they concern *"mammillaris"* the remarks of Dr. von Poellnitz follow:

a. (Observation of Dr. von Poellnitz No. 12, l. c.) Berger has described erroneously *Euphorbia mammillaris* of Linnaeus. His description applies to a different species, to wit: *Euphorbia fimbriata*, Scopoli. The latter is the species which Berger mistakenly has assumed to be *Euphorbia mammillaris*, L., in "Monatsschrift fuer Kakteenkunde," XV, 1905. *Euphorbia mammillaris*, L., *varietas spinosior*, listed by Berger must be rejected.

b. (Observation of Dr. von Poellnitz No. 13, l. c.) Berger has described erroneously for a second time *E. mammillaris*, L., under the name *Euphorbia erosa*, Willdenow. *Euphorbia erosa*, Willd., of Berger must be considered a synonym of *Euphorbia cereiformis*, L.

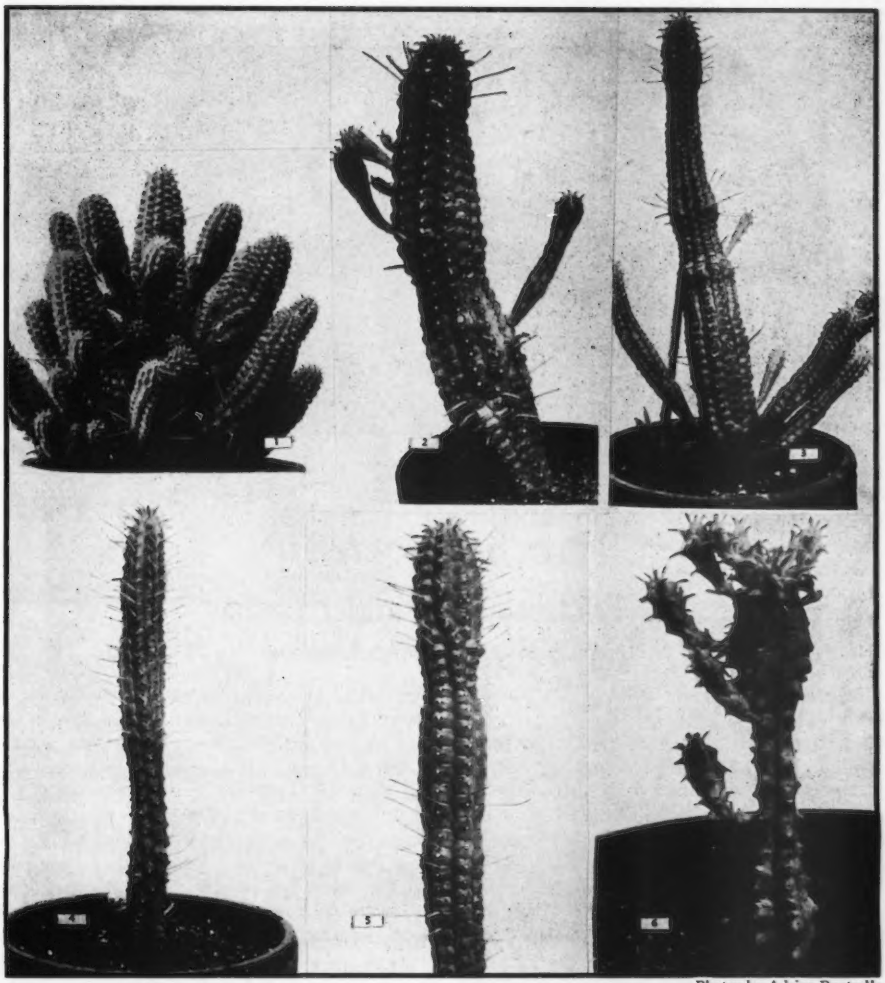
c. (Observation of Dr. von Poellnitz No. 16, l c.) Berger has assumed erroneously that *Euphorbia enneagona*, Haworth is synonym of *Euphorbia cereiformis*, L. *Euphorbia enneagona*, Haw., is synonym of *Euphorbia fimbriata*, Scopoli.

I shall consider Observation No. 16 and part of Observation No. 15 in a separate study. Without dwelling on the letter of Dr. von Poellnitz's remarks, which are obscure and confusing at this stage of my work, I will compare first the classification proposed by Berger and the classification proposed by N. E. Brown for Euphorbiae type *mammillaris*, taking them as they stand. Berger's species are:

1. *Euphorbia mammillaris*, Linnaeus.
2. *Euphorbia mammillaris*, Linnaeus, *varietas spinosior*, Berger.
3. *Euphorbia erosa*, Willdenow.
4. *Euphorbia submammillaris*, Berger.

N. E. Brown's species are:

1. *Euphorbia mammillaris*, Linnaeus.
2. *Euphorbia fimbriata*, Scopoli.
3. *Euphorbia submammillaris*, Berger.



Photos by Adrien Boutrelle

FIG. 1. *Euphorbia mammillaris,* Linnaeus—Remark branching habit; round, hemispherical tubercles; disposition of spines.

FIG. 2. *Euphorbia mammillaris,* Linnaeus—Remark disposition of the tubercles and form of the angles.

FIG. 3. *Euphorbia mammillaris,* Linnaeus—(grown in more moist surroundings). Remark build; slender branches; the tubercles are somewhat more elongated, but still prominent and typical.

FIG. 4. *Euphorbia platymammillaris,* sp. nov. (Western Cape Colony mammillaris of N. E. Brown). Remark slender build; long leaves; flat angles; very apparent scars from fallen-off leaves; numerous spines.

FIG. 5. *Euphorbia latimammillaris,* sp. nov. The tubercles are exaggeratedly high—specimens grown in dry localities have lower tubercles, the whole pattern of the angles showing like brick-work made of flat bricks laid out lengthwise.

FIG. 6. *Euphorbia fimbriata,* Scopoli. Actual size, 2¼ inch. Remark dentate angles; design of the tubercles on the side sprouts. (To be continued)

Dr. Leon Croizat of 127 W. 78 St., New York, has prepared for us the first of a series of articles in which he has presented his tireless research to clear up the confusion in the Euphorbiae. His training at the Royal University, Piedmont, Italy, and his knowledge of botany combined with the mastery of many languages makes this review valuable to science. This review is frankly critical rather than creative and personalities have not been considered in his search for truth. Dr. Croizat will welcome correspondence and any information that may aid him in his work.

SCOTT HASELTON, *Editor.*

Photo by Dinter

FIG. 84. *Hoodia macrantha*

The Stapelieae

15. Trichocaulons and Hoodias

By ALAIN WHITE and BOYD L. SLOANE

The earliest great modification of form among the *Stapelieae* occurred when they squared the circular stems of the genus *Frerea*. The many resulting types of 4-ribbed stems carried the tribe throughout its range over three continents. But there was ever an urge to something more complex. In *Stapelia*, especially the section *Stapletonia*, freak stems with six ribs (never 5!) are not rare. In *Huernia*, 5-6-7 ribs become commonplace, and shoot up to 24 ribs in *H. pillansii*. And in *Caralluma*, after a half-dozen experiments with 5-6 ribs, there is a similar flare up, and we have the many-ribbed genera *Echidnopsis* and *Trichocaulon*. For in these the corona forms are little changed from *Caralluma*, but the stem habit is changed just as radically as that of *H. pillansii* from all the other *Huernias*. Why so?

The readiest explanation suggests that the sudden multiplication of ribs was a special adaptation to conditions of extreme drought, the increase of stem surface in proportion to stem diameter permitting of better evaporation, while the increase of spines and bristles, where these are present, threw a cooler shade on the furrows between the ribs. Certainly *Huernia pillansii* loves the dryest and most stony places near Matjesfontein, in the path of the desert winds which blow from the Karroo to the Hex River Pass. And as to the *Trichocaulons*, Dr. N. E. Brown has just written most interestingly in the new Journal of the Cactus and Succulent Society of Great Britain. He quotes Mr. Pillans as saying that the Trichos "never grow upon flat country nor upon the eastern side of a hill, but *always* on the upper western slope of a fair sized hill or range of hills, and then they pick out the driest spot where most shale and least soil is to be found. It is a marvel how they stand the drought".

Of the many-ribbed genera the most northerly in distribution is *Echidnopsis*. The seven species extend from Arabia, through Abyssinia and Somaliland to Tropical East Africa, and Prof. Dinter claims to have discovered a new species in S. W. Africa. All are said to be easy growing, but only one species is found in American collections, the responsive *E. cereiformis* Hook. fil. The "cereus-like Echidnopsis" is recognized by its dark green cylindrical stems, sometimes elongated to over a foot, with eight rows of small hexagonal tubercles tipped with the remains of tiny rudimentary leaves. The flowers are very small, as are those of all the genus, but they are a pretty bright shade of yellow, and the plant is a very free bloomer. There are two varieties of this species, and the *var. obscura*, with brown flowers, from Abyssinia and Som-

aliland, is not rare. By many it has been supposed to be another species: *Echidnopsis dammanniana* Sprenger, but it is distinguished from the latter by the absence of the inner corona, a feature common to all forms of *E. cereiformis*.

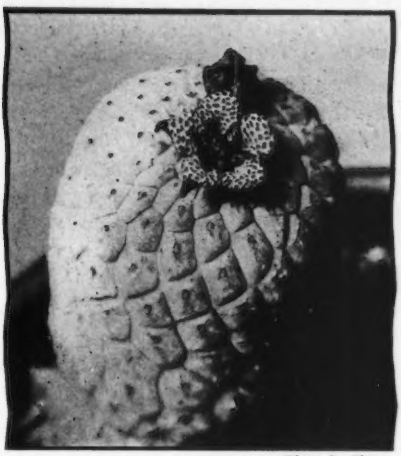


Photo by Sloane

FIG. 85. *Trichocaulon meloforme* x 1.5

The *Trichocaulons* and *Hoodias* are native to the Cape and South West Africa. So much interest in them is developing that it is desirable at least to mention all the recognized species. Some two dozen Trichos have been described. But it is not easy to identify them all, for few have flowered in this country, the flowers are difficult to photograph satisfactorily, and the descriptions are sometimes incomplete. For instance all that has as yet been told of the "Karas Mountain Tricho", *T. karasmontanum* Dtr., is that it is a spiny species with inconspicuous flowers, and of the "Halenberg Tricho", *T. halenbergensis* Dtr., we know only that it is a tall spiny species with yellow flowers!

The "spiny Trichos" (*aculeatae*) are those in which the stem tubercles are tipped with a stiff bristle or slender spine. They are the taller, cylindrical forms, the plants being from five inches to two feet high. The "spineless Trichos" are rarely over four inches in height. Their stems are more nearly globose in shape, and they branch out little, if at all. A specimen with more than five or six stems is rather unusual. The expression "spineless Trichocaulon", by the way, is etymologically a contradiction, inasmuch as the name "*Trichocaulon*" means a "hairy stem", and refers only to the spiny-stemmed group.

The "spineless Trichos" are ten in number. Best known is the "cactus-like Tricho", *T. cactiforme* N.E. Br., from Little Namaqualand and S. W. Africa. The tiny papillate flowers are pale yellow spotted with crimson. The corona sets down into a distinct cup-shaped tube at the center of the corolla. The outer corona segments are divided, as in many Trichos, each into two almost independent lobes. *T. meloforme* Marloth has corolla lobes with a yellow base marked with dark-maroon spots and points uniformly dark maroon. "Similar" in its stem shape is *T. simile* N. E. Br., with minutely papillate dark purple brown flowers, the outer corona lobes each *three*-toothed.

Tallest of the spineless Trichos is *T. engleri* Dtr., from Namaqualand and S. W. Africa, with stems that reach eight inches, characterized by distinctive three-fifth inch finely papillate flowers, yellow-green or creamy in color with round dark-brown to red-brown spots. Another tall (six inch) species is *T. keetmanshoopense* Dtr., from near Keetmanshoop in S. W. Africa. The cylindrical stems have prominent protuberances. The flowers are whitish-green to greenish-yellow covered with red-brown spots of varying size. They are glabrous within. The corona lobes are bifid.

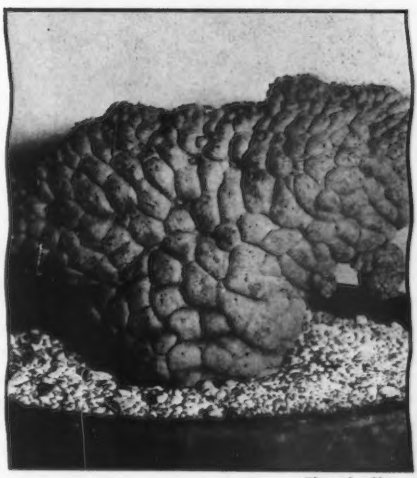


Photo by Sloane

FIG. 86. *Trichocaulon cactiforme cristate* x .6

Five species of spineless Trichos are without the corolla tube. Their flowers appear all to be without papillae on the inner corolla surface. The shape of their flowers is also somewhat different, more saucer-like than in the species which have the corolla tube. *T. marlothii* N.E.

Br., with dark purple flowers, is named for the much loved South African botanist, Dr. Rudolph Marloth, 1855-1931, who discovered three new species of Trichos in Namaqualand and S. W. Africa. Very similar is *T. dinteri* Brgr., with slightly smaller red-brown spotted flowers. The "painted Tricho", *T. pictum* N. E. Br., has pale whitish-yellow flowers, with small purple-brown spots and lines. The outer corona lobes divide into three parts. Unique in the genus for its ashy-grey flowers is the "ashy Tricho", *T. cinereum* Pillans, from Namaqualand. Last of the spineless-stemmed species is *T. sinus lüderitzii* Dtr., from Luderitz Bay in S. W. Africa, where the annual rainfall is barely half an inch and water has to be brought from sixty-five miles away. Here thrives this little

Photo by James West

FIG. 87. *Trichocaulon englerii* x 2.5

yellow-green flower, with its tiny concentric red spots. The outer corona has ten lobes, with five minute additional ones between the base of the larger pairs. The flowers are most inconspicuous and even when fully developed appear as only half open.

The Hottentots have a name, "guaap", which Dr. Brown tells us, in the English Cactus Society Journal already quoted, is applied by them to different groups of the *Stapelieae*. *Hoodias* are "Wolves guaap". The hairy-stemmed *Stapelias* are "Snake guaap", being a dainty for the snakes of the interior country. All the spiny-stemmed Trichos are guaaps, and the Hottentots and Bushmen eat them or use them medicinally, as their witch doctors may direct. Mrs. van der Bijl tells us of an old man who would say of *Trichocaulon flavum* N. E. Br.: "Yes, that n'guaap! Cut a small piece, chew it and then smoke a pipe!" One can imagine the wonderful flavor this would impart to a smoke! The stems of the guaaps, after having had the spiny tubercles cut off, may be preserved in sugar syrup and the Dutch fancy the result very much.

The spiny Trichos may be sub-divided, as were the spineless species, according to the presence or absence in the flowers of a distinct tube or cavity at the base of the corolla. In all but two or three species the inner surface of the corolla is more densely pubescent or papillate than was the case among the spineless species.

The classic example of the spiny-stemmed, tube-flowered guaap is *T. piliferum* N. E. Br., one of the five *Stapelieae* known to Linnaeus the younger. It was again collected by Masson on the Karroo and has always remained an object of curiosity among collectors. It was the first Tricho introduced into this country, and its stem was shown in Fig. 10, from the pioneer plant in W. I. Beecroft's collection. The plant is 5 to 8 inches high, the half-inch flowers a

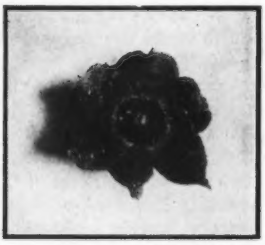


Photo by Sloane

FIG. 88. *Trichocaulon piliferum* x 2.

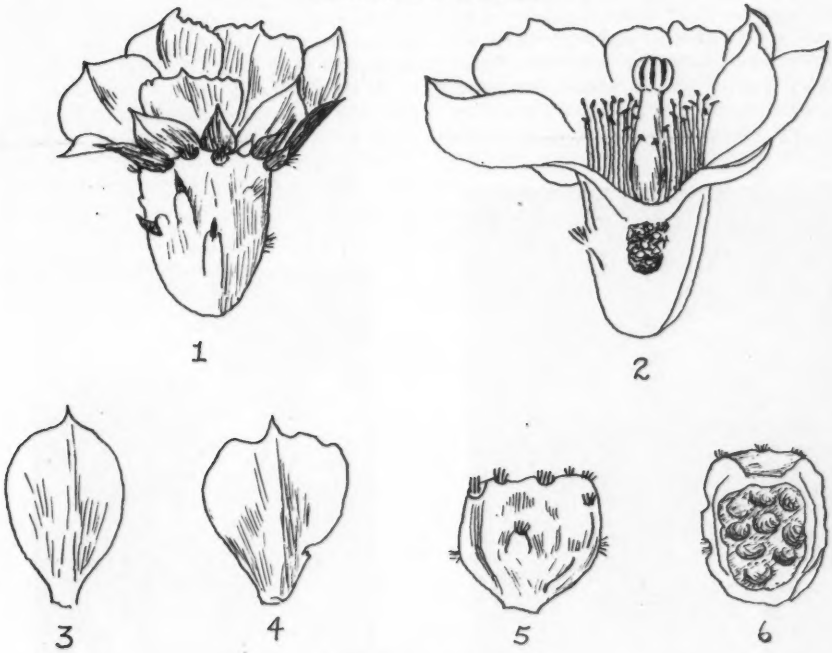
dark purple brown, heavily papillate, with a slightly raised ring on the corolla disk. The only Tricho with a prominent annulus is *T. annulatum* N. E. Br., a taller species (stem to a foot and a half) from the Central region of the Cape, with even darker flowers, densely covered with conical papillae. Another dark purple brown flower is that of *T. rusticum* N. E. Br. This is one of Dr. Marloth's discoveries. The flowers are quite tiny, minutely pubescent on the inner side, and all trace of an annulus has disappeared.

(Concluded in next issue)

NOTE: The following 8 pages are the 16th installment of the Britton and Rose reprint of Vol. I, The Cactaceae.

Notes on Britton and Rose

Edited by E. M. BAXTER



Opuntia hanburyana Weber

The Flowers of *Opuntia Hanburyana* Weber

By N. L. BRITTON

We were unable to illustrate the flower and fruit of this plant in "The Cactaceae". It had been grown for several years at The New York Botanical Garden, from joints sent from Sir Thomas Hanbury's garden at La Mortola, Italy, but had not flowered.

Figure 193 on page 154, Volume 1, shows the joints.

From sketches and notes found in the great Herbarium of Succulent Plants formed by Mr. Alwin Berger, while he was employed by Sir Thomas, at La Mortola, recently acquired for The New York Botanical Garden, I can now supply illustrations and detailed descriptions.

The green, fleshy, ovate, outer petals are acute, about 15 mm. long, or shorter; the fully expanded flower about 6 cm. broad; the canary-yellow inner petals are obovate, apiculate, about 3 cm. long and 2 cm. wide; the yellow stamens are about 12 mm. long; the stout style is about 2 cm. long, the 5 stigmas white. The obovoid-subglobose fruit, sunken at the top, is 2 or 2.5 centimeters long, its few areoles with a tuft of short spinules; the numerous seeds are large.

The species is, as yet, known to me only from cultivated plants; its native habitat remains undetermined.

FIG. 1, a flower; FIG. 2, a flower in section; FIGS. 3 and 4, inner petals; FIG. 5, a fruit; FIG. 6, a fruit in section. Doctor Hollick has kindly copied these for me from drawings in the Berger Herbarium.

Catalogues Received by the Librarian

Howard E. Gates, 119 South Illinois St., Anaheim, Calif. (Free.)

F. A. Haage, Jr., Erfurt, Germany. (Free.)

Mrs. A. F. Moeller, Ave. Rayon No. 603, San Pedro, Coah., Mexico. (Free.)

Sectional Division of the Genus *Opuntia* II

E. M. BAXTER

Illustrated this month are the plants and flowers of *Opuntia subulata, Opuntia cylindrica,* and *Opuntia vestita.* These illustrations show very clearly the close relation between these species, although they are placed in two different Series.

The three photographs are from James West.

Specimens on hand, and literature, show that another Series now credited to the subgenus

Opuntia vestita. Flowering plant in the collection of Paul Weber Nursery, Ventura Blvd., Van Nuys. This species shows the tendency to make globular joints, but maintains the cylindric form in cultivation. Flowers are dark red, beautiful in contrast to the white hairy ovaries.

Tephrocactus (globular Opuntias) should be placed in the Section with the species named in the first paragraph. That is the Floccosae Series whose species are *Opuntia floccosa, Opuntia lagopus,* and a recently described species that should be placed there—*Opuntia atroviridis.*

In cultivation, two of the last three named take on a manner of growth very similar to that of *Opuntia cylindrica.*

I have seen the following species growing in local collections: *Opuntia subulata, Opuntia cylindrica, Opuntia vestita, Opuntia teres, Opuntia atroviridis, Opuntia floccosa.* Photographs and other material other than that in "The Cactaceae" have also been studied of these additional species: *Opuntia pachypus, Opuntia exaltata.*

Of the species included in the Section that I have not seen, the classification and keying of "The Cactaceae" has been followed.

This Section differs from the North American subgenus *Cylindropuntia* in its continued growth (in a more pronounced manner without forming nodes.

Opuntia cylindrica. Flowering plant in the collection of Dr. Reticher, Los Gatos. The flowers are dark red and do not open widely. Compare with the photograph of Opuntia vestita which has been considered as in a separate series of Cylindropuntia.

I have taken for the name of the Section Schumann's name *Teretes* which he applied to a series (more nearly corresponding to this Section) of the genus *Opuntia.* Some of this Section had at one time been placed in a separate subgenus, *Pereskiopuntia.*

The Section may be characterized as follows:

Joints cylindric, short or long; leaves comparatively large and long persistent; stems not woody as in North American *Cylindropuntia.* Flowers reddish. Fruit clavate, resembling the stems in its tubercles, areoles and spines; often proliferous. Spines without sheaths, yellow or dark brown.

Teretes Section of Opuntia

Key to Series

Stems normally long-cylindric.....*Subulatae*
Stems normally short-cylindric.....*Floccosae*

In this reckoning the Series *Vestitae* and *Subulatae* of Britton & Rose's "The Cactaceae" are combined as not having sufficiently differentiated characters.

Opuntia subulata. Flowering stem that shows a condition also prevalent in Opuntia cylindrica—an apparently normal stem joint developing an ovary and flower. This phenomenon is more related in species that have been studied. In some instances the stem may have grown to be nearly two feet long before the flowering section develops. This photograph was taken in the Santa Barbara Museum.

Subulatae Series
Key to Species

Tall, stout species
- Plants tall, upright; leaves large and long-persisting
  - Leaves up to 12 cm. long; spines yellowish-white
    - Areoles without long hairs..... *O. subulata*
    - Areoles with long hairs..... *O. teres*
  - Leaves 1 to 7 cm. long; spines brownish..... *O. exaltata*
- Plants lower, leaves much smaller, seldom 1 cm. long.
  - Stem 1 meter high; leaves 4 mm. long..... *O. pachypus*
  - Stem 1 to 2 meters high; leaves to 1 cm. long..... *O. cylindrica*

Small upright species, seldom .5 meter high.
- Areoles with hairs; joints not or scarcely tuberculate.
  - Joints 1 to 1.5 cm. thick; spines 2.5 cm. long or less, fruits mostly sterile..... *O. vestita*
  - Joints 2.5 to 3 cm. thick; spines up to 5 cm. long; fruit many-seeded..... *O. shaferi*
- Areoles without hairs; joints distinctly tuberculate..... *O. verschaffeltii*
- Of this Series?..... *O. hypsophila*

Floccosae Series
Key to Species

Robust species, joints usually covered by long hairs.
- Spines yellow, stout..... *O. floccosa*
- Spines white, acicular..... *O. lagopus*

Small jointed, densely clustered species, with no hairs..... *O. atroviridis*

NOTES

By G. A. FRICK

One of the discoveries made in the excavations of the prehistoric city of Calixtlahuaca in Mexico was a cluster of cactus spines tied together in such a manner as to lead the professors in charge of the work to theorize that they were used as an instrument of torture.

Here is news, Czechoslovakia has had a Cactus Society and have been publishing a monthly magazine continuously since 1922. The name of the Journal is "Mesicnik Kaktusarske" and is published at Praha which is the location of the Society's headquarters. This has been placed on the exchange list with the Journal which now exchanges with the following countries publishing their own Cactus paper: Belgium, Czechoslovakia, England, Germany, Holland and Japan.

CACTUS CULTURE

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A rockery in the shape of the State of Queretaro, Mexico, and composed of cacti native to that state only, was the exhibit of Ferdinand Schmoll in the San Jacinto, Mexico show last month. Member Schmoll took first ribbons and a diploma with his exhibit.

There is no way of telling, nor are there any authentic records by which it is possible to state just what the greatest age the *Carnegiea gigantea* may attain, but it is doubtful if they ever exceed 250 years.

Photo by Eric Walther

Crassula hemispherica approx. x .2.

Crassula hemispherica Thunbg.

By ERIC WALTHER

Quite as queer and interesting as the other species recently pictured here, *Crassula hemispherica* also is deserving of notice as another one of these extremely reduced plant-bodies so characteristic of various succulent xerophytes native to the South African deserts. As far as we are aware, this is the first season that this species has been flowering here, the plant pictured having been photographed at Soldena Gardens in September 1932, by the author.

Photo by Eric Walther.

Crassula hemispherica approx. x 1.
Young rosette as seen from above.

Crassula mesembrianthemopsis Dinter

By ERIC WALTHER

Further introductions of novel species compel us to add another note to our growing collection pertaining to the *Crassulaceae.* On contemplating the appended photo or its subject it is difficult to avoid making teleological explanations of the remarkable similarity this Crassula displays to some of the well-known mimicry-mesembs inhabiting the same parts of Southwest Africa. It is equally, if not more, reasonable, though, to suppose that similar influences, habitat, etc., will produce like results even in quite unrelated plants. However, this

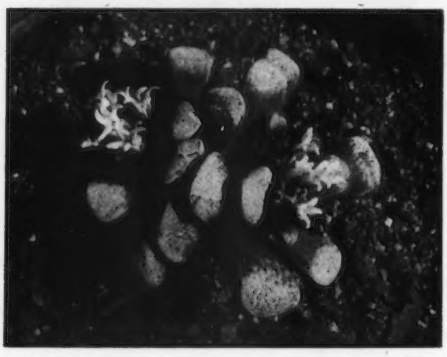


Photo by Eric Walther

Crassula mesembrianthemopsis x 1. flowering at Soldena Gardens, Pasadena, California.

species of Crassula, certainly appropriately if awkwardly named, surely must represent nearly the ultimate in reduction of surface exposed to the intense sun of its native habitat, Great Namaqualand, Southwest Africa, one of the driest regions on this earth. This gives the key to its culture here, i.e., extreme care in watering. The species belongs to Harvey's Section *Pyramidella,* also including the previously pictured *C. columnaris,* as well as *C. pyramidalis.* etc.

Ants and Aphis

In the June JOURNAL, Robert S. Woods speaks of ants as often being found around cacti, and supposes "that the ants perform some service, such as ridding the cactus of insect enemies." Alas! It is exactly the opposite! If he will dig up a cactus under which there is a flourishing ant hill, he will probably find that the ants are using the roots of the cactus as a pasture for their aphis. Aphis are sometimes called the ants' "cows" because the ants cherish them on

account of the secretion which the aphis exude when the ants stroke them. It is said that the ants carry the aphis down into their nests in winter in order to preserve them.

This is quite interesting, but rather hard on the roots of the poor cactus. I have been digging up the infected cactus and holding the roots for about three minutes in a solution of soapsuds to which has been added a few drops of Black Leaf 40. I then wash the aphis off, taking particular care to get them out of the hollow where the roots start, and when I plant them again, I fill in around them with sand. Sand is so loose and slides so much that ants cannot build tunnels in it.

I hope this treatment will settle the aphis problem. Pouring the solution around the plant does not kill the aphis because it drains down too quickly, and also because it does not reach the hollow at the base of the cactus.

NELLIE SUYDAM COWLEY, Glendora, Calif.

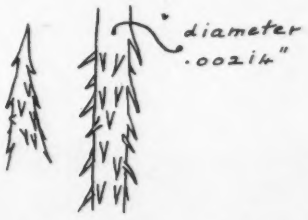
Notes from Canada

Echinopsis turbinata and Frost

Last summer I presented a small offset (about two inches in diameter) of *Echinopsis turbinata* to a friend who had shown some interest in the plant, accompanying the gift with stern injunctions as to care in watering and protection from frost. This spring, on a day when the snow was rapidly melting in the sun, and almost as rapidly freezing in the shade, I happened to visit the recipient. There on a window-sill was the pot, plant, soil, pot and sill being welded into one mass by a thick coat of glair ice. I observed—mentally, of course—"Oh! well, I shall know better next time", and forgot the matter. About a week ago I saw the plant again. To my surprise, it was perfectly healthy, and showed no signs of the rude ordeal to which it had been subjected. Nature is very unaccountable at times.

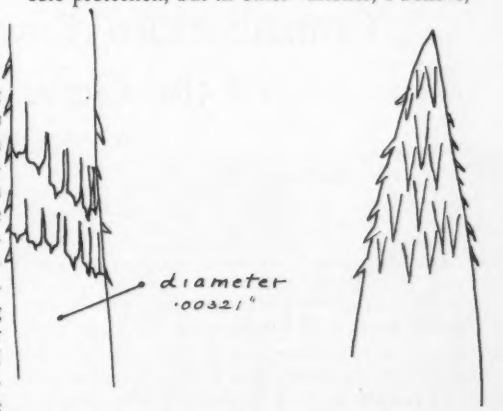
Our Friend (?) the Glochid

Some weeks ago I was presented with a small plant of *Opuntia microdasys* . . . After I had got my breath back and had finished extracting the last (anyway, I *hope* it was the last!) of those deceptively velvety-looking spines, my curiosity was roused as to the exact nature of the structure which had caused me so much grief. So out came the microscope, the stage being occupied by one glochid of *O. microdasys,* and one from an opuntia described—wrongly, I imagine—as *"humifusca"*. The resulting revelation was intensely interesting to my novice's eye—so much so, in fact, that I endeavored to set down on paper the salient ("le mot juste" in this case!) characteristics of the little beasta.



Structure of glochid of O. Microdasys
x 87

The accompanying sketches may serve to explain the clinging propensities of these little organs. Is there any plausible theory as to their purpose? In *microdasys,* of course, they are the sole protection, but in other varieties, I believe,



Glochid of Opuntia humifusca
x 175

they are accompanied by more prominent spines which should, apparently, serve adequately by themselves as a defense against marauding animals. And can any reader suggest the correct designation for *O. humifusca?*

By G. R. L. POTTER, Ottawa, Canada

WARNING— Several of our members have received the 1933 catalogue of a German dealer in Cactus this month. Before placing your order for plants or seed, we wish to suggest that information of the dealer's standing and reliability be secured from the "Society Dealers Record" in charge of Boyd L. Sloane, 1421 Dominion Ave., Pasadena, Calif.

FIG. 1. Habitat of *Dudleya albiflora* on Magdalena Island. Photo by H. E. Gates.

Contributions Toward a Monograph of the Genus *Dudleya*--IV

By DONALD A. JOHANSEN

Dudleya albiflora Rose

SYNONOMY: *Echeveria albiflora* (Rose) Berger, in Nat. Pflanzenfamilien, Ed. 2, *18a:* 477. 1930. (Berger patently had never seen the plant, as his brief description is merely an exaggerated version of the original.)

Dudleya albiflora was first described by Dr. J. N. Rose in the Bulletin of the New York Botanical Garden, vol. 3, p. 13. 1903. The description was made from living specimens sent to Dr. Rose by T. S. Brandegee, who collected them at "Magdalena Bay, Lower California," in the fall of 1902. The description is a little vague, omits important characters and in a few respects at least is doubtless in error. It is now possible for us to present a more complete description of this species, based upon specimens collected by ourselves and upon another specimen collected by Mr. Howard E. Gates several miles north of where our specimens were collected.

While in the region of Magdalena Bay during April, 1930, under the auspices of the National Research Council for the purpose of collecting certain species indigenous to that region, an intensive search was made for Rose's plant. Up to last year, this was the only white-flowered species known, consequently we were keeping a sharp watch for it. It was not found on the mainland nor on Santa Margarita Island, which we visited first. Finally, the writer's companion on the trip, Mr. Edgar M. Baxter, spotted it about a mile northwest of the village of Magdalena on Magdalena Island (on most maps this locality is still called by its quaint old name, Man-of-War Cove). This Dudleya, incidentally, was found just a few moments before we came upon one of the plants for which the trip was specifically made, so that we were too much overwhelmed by the two finds to appreciate our good fortune until after we had returned home!

In general, the plants grow only among rocks towards the upper edges of the steep southern slopes of the deep gullies and ravines characteristic of the leeward side of the mountainous island. Figure 1, kindly supplied by Mr. Gates, gives a most excellent idea of the general character of this part of Magdalena Island, and one may also gain a good idea of the nature of the peculiar and intensely interesting vegetation to be found on the island. Although a semi-desert country, with very scanty rainfall, the vegetation nevertheless is actually luxuriant in many spots. The very mountainous southern portion of the island, as seen in the center background, has never, to our knowledge, been vis-

ited by any botanist and it is highly probable that many interesting plant forms remain to be discovered there. Santa Margarita Island, very dimly outlined at the left, is even less known botanically than Magdalena Island.

To describe *D. albiflora:* Caudex obscure, thick, crowned by several dense rosettes (usually 8 to 12, hardly "25 or more"). Leaves long-persistent and exceedingly brittle; the

Photo by H. E. Gates

FIG. 2. *Dudleya albiflora*: habit. The plant is growing in an 8-inch pot.

older ones conspicuously large, linear to linear-lanceolate, often falciform, irregularly thickened, flattened on one side and rounded on the other, to 12 cm. long, 1.2 to 1.6 cm. wide, bright green and shining (not "becoming purplish" in any plants seen by us), acuminate (hardly "acute" on our own specimens, although Mr. Gates' has a few young leaves that are acute); the younger leaves much resembling the older in shape, but generally not over half as long, numerous and crowded, linear and long-acuminate, averaging 1 cm. wide, distinctly glaucous-pruinose (on Magdalena Island, it was noted that many plants, especially in the more exposed situations, were decidedly pulverulent!). Flowering stems arising from among withered leaves, 20-36 cm. high, thin and weakly constructed, with a translucent appearance; cauline leaves variable, irregularly scattered, more or less horizontal, cordate to oblong, very thick, 4-25 mm. long, often larger above than below, acute to acuminate, green and shining. Inflorescence consisting of a pair of secund racemes, with a single large flower in or near the crotch, each raceme becoming about 7 or 8 cm. long at maturity. Occasionally, especially on stems which are long-persistent, a secondary raceme may appear below the terminal pair. Pedicels 4-9 mm. long, stoutish. Calyx cleft two-thirds to base, the lobes unequal, 4-6 mm. long, triangular-lanceolate, acute or rarely short-acuminate, glaucous. Corolla about 12 mm. long, cleft two-thirds to base, the lobes linear-lanceolate, acute, not spreading or only slightly so at the tips, pure white. Filaments subequal; anthers oblong, 0.8 mm. long, yellow. Carpels split to base, but remaining closely applied to one another.

Figure 2 shows clearly the habit of one of our own specimens, growing in an 8-in. pot. The basal leaves on Mr. Gates' specimen are not quite so pronouncedly acuminate, otherwise it is similar to our own ones. Figure 3 shows a single inflorescence in greater detail; the flower in the crotch had been open only four days when the photo was taken, which gives a good indication of the very slow development of the flowers in this species.

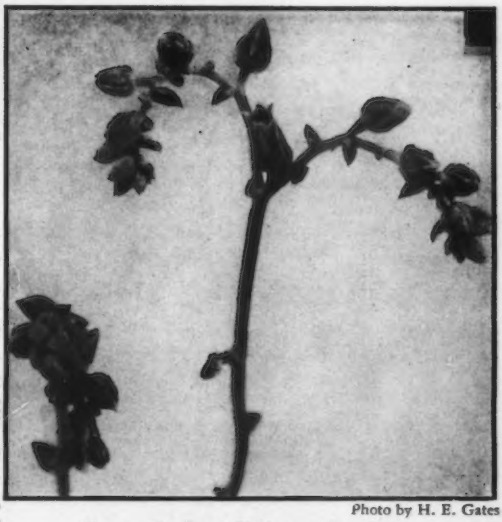


Photo by H. E. Gates

FIG. 3. *Dudleya albiflora*: inflorescence.

The plants are a little difficult to establish in cultivation; they need partial shade for their best development. They do not commence blooming until at least a year after being transplanted or until what seems to be a minimum of six rosettes have been developed.

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Echinocereus delaetii, Gurke

(See Front Cover)

By Helen McCabe

I was a proud and pleased person when my *Echinocereus delaetii* put out a fat bud last July in preparation for flowering. I had never seen the blossom and watched every day until the big day.

It turned out to be a large rose pink flower, near the top of the plant, opening when the sun was out bright and closing at night. It continued to do this for three days before finally fading.

The flower is characteristic of the Echinocereus family while the plant greatly resembles *Cephalocereus senilis.* A novice can't tell them apart until they are told that the hair is coarser and that there are red bristles among the white hairs which the *senilis* does not have.

It is also a low grower, not over eight inches high and throws shoots out freely from the base. In my collection I have them with six heads. These plants are native of Mexico and were imported into Europe in large numbers by cactus dealers. The plant was named in honor of the late Frantz de Laet of Belgium.

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